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## New non-invasive way to protect CNS via intranasal administration of nerve growth factor

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Nerve Growth Factor (NGF) is the first discovered and best characterized member of the neurotrophin family, known for playing a critical protective role in the development and survival of sympathetic, sensory and basal forebrain cholinergic neurons in mammals, including humans. NGF has a neuroprotective action in Alzheimer's and Parkinson's disease, as showed by several studies in animal models and humans. NGF does not cross the blood-brain barrier if injected subcutaneously or intravenously; therefore, an alternative delivery method is required. NGF can be delivered to the CNS via nasal route and has a neuroprotective action in case of neurodegenerative diseases and brain injury. Furthermore, recent studies have shown an active link between the nasal pathway and the spinal cord in the delivery of NGF to the CNS, thus demonstrating the neuroprotective ability of NGF to support injured neurons in a mouse model of spinal cord injury. Intranasal delivery of NGF has so far been sufficiently investigated in animal models and only recently in humans, as demonstrated in a recent study on long-term intranasal administration of NGF in two patients with frontotemporal dementia associated with corticobasal syndrome and in another study on intranasal administration of NGF in a brain injury. These studies demonstrated the neuroprotective role of NGF administered nasally. Intranasal administration is the most effective and non-invasive way to deliver NGF to the CNS. Hence, these findings suggest the ability of NGF to protect CNS neurons when administered via nasal spray.

### Biography

Alberto de Bellis is the Founder and President of Maria Rosaria Maglione Foundation Onlus in Italy; a non-profit organization for neuroscience.

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